Utah Broadband Methodology Paper, Spring 2011

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About the Interactive MapThe Utah Broadband Project Interactive Map website is a joint project of the Utah Public Service Commission, Governor’s Office of Economic Development, and Department of Technology Services.The map was developed and is hosted by the Utah Automated Geographic Reference Center (AGRC) utilizing data complied by the Project from broadband providers and public sources, including Utah’s State Geographic Information Database (SGID) which is utilized extensively for locating addresses, locating geographic places, and displaying background maps.Please report any problems with this web page, the Utah Broadband Interactive Map, or relating to broadband availability in Utah to broadband@utah.gov.This page contains the following sections:Using the Interactive MapAdditional Utah Broadband Maps and ResourcesMap GoalsMap Data DescriptionMap Data ValidationMap Data VerificationMap DisclaimerMap and Data Update LogUsing the Interactive Map

The Map is divided into three, roughly equal-sized columns.The left column allows for users to enter a search location (either by entering an address or clicking on the map) and displays the broadband provider and speed results at the specified location.The middle column is devoted to the map display. Users can use the map scale indicator in the upper left corner of the map to zoom the map in or out. Users can also click and drag to pan the map in any direction. A search box on the map will allow the user to enter a place of interest and have the map zoomed to that location. Examples of items that can be entered into the search box include:counties, zip codes, cities, U.S. congressional districts, Utah state house districts, Utah state senate districts, tribal areas, regional associations of government, recreational areas, etc.The right column allows users to explore and visualize available speeds, technologies, providers on the map by controlling their own data filter. In addition, in the lower right corner, users can control the transparency of the broadband service data and the background map of their choosing.Additional Utah Broadband Maps and Resources

In addition to the Utah Broadband Map interactive map website, additional broadband map products are available that depict availability, speed, and technology in Utah. At present these include maps of highest available speed, available technology, and community anchor institution maps that depict school, health center, government office, and emergency response station facilities and the internet access at these locations.Map Goals

The map attempts to provide consumers, community leaders, and broadband providers with a comprehensive map-based view of non-confidential data complied by the Utah Broadband Project. This information can be used to support:Consumer and Business Decision Support:What provider options and performance are available at a specified locations?What locations is broadband service available from a provider of interest (a current provider, for example)?Does the broadband map accurately reflect available services?Community Leader Decision Support:How does broadband service compare in an area of interest with other parts of the state?Where are un- or under-served areas for which the expansion of broadband service or performance should be targeted?Does the broadband map accurately reflect available services?Broadband Providers Decision Support:Where are opportunities to expand service and performance?Does the broadband map accurately reflect available services?Map Data Description

The Utah Broadband Project’s Fall 2010 submission to the NTIA/FCC State Broadband Data and Development (SBDD) program includes both confidential and non-confidential data relating to service availability and infrastructure for over 40 broadband providers. Non-confidential data depicts broadband availability, speed, and technology for wireless service provision as service area polygons and, for wireline provision, as service areas and address points aggregated to a census block level in urban and rural settled areas and along road segments in rural and exurban areas where census blocks are greater than 2 square miles in size. Additionally, provider-submitted middle and last mile infrastructure data and pre-aggregation address-level wireline service information were submitted to the SBDD program as confidential data.The locations of community anchor institutions, such as schools, libraries, government offices, health and human service provision locations, and public safety facilities were also collected and submitted. Where possible, speed and service technology are indicated, especially for those institutions that receive broadband service from the Utah Education Network, the State of Utah Department of Technology Services, or the Utah Telehealth Network and those organizations that report this information to the State Library.The State of Utah and its provider engagement contractor, International Research Council (of Mesa, Arizona) developed program communication packets, worked to develop NDAs where necessary, and provided engagement and technical assistance to providers regarding the submission guidelines and process.Participating providers listMap Data Validation

The Utah Broadband Project submission was in the data structure outlined in the National Broadband Map Data Transfer Model (NBMDTM) v1.0.1. In order to submit data in this format, all provider data submissions were transformed to this data structure and loaded into an ESRI File Geodatabase. The project worked with provider data in many formats including customer and ‘buildings-passed’ addresses and address ranges in spreadsheet, text file, and geographic information system formats. Census blocks, pdf maps, computer assisted design (CAD) data files, and public-facing websites showing provider service areas were also translated into NBMDTM compliant formats.Aerial photography, address location services, census block geometry, and road segment geometry used for broadband service mapping and quality control of the data are from public domain resources in Utah’s State Geographic Information Database (SGID) maintained by the Utah Automated Geographic Reference Center and funded and supported by the State of Utah general fund, the Utah 911 Committee, and partnering local, state and federal agencies.Additionally, in cases where providers were only able to provide last-mile infrastructure locations, terrain modeling was used to generate wireless coverage data and network distance modeling was used to form DSL provision areas using the street network as a surrogate for the broadband delivery system’s wire network.Due to time constraints, validation work was

somewhat limited to the work to translate provider data submissions into the NBMDTM and its list of coded values and other attribute specifications. In subsequent submissions, the Project will incorporate automated procedures developed by the FCC to ensure that project data conforms to the evolving NBMDTM.Map Data Verification
Utah feels strongly the best verification resource is a continued relationship with participating providers and the display of availability and speed data through the state broadband interactive map. Along these lines, Utah prepared provider feedback packages including a CD containing the providers NBMDTM transformed data, pdf overview maps of the providers service area by download speed, submission record counts, transformation process notes (including problem areas), and suggestions on how to improve the data quality and/or how to make subsequent submissions easier.Utah also compared data submitted to the American Roamer and Media Print Cable Boundaries data and to the Public Service Commission’s telecommunications territory boundaries. In preparation for the release of the Utah Broadband Map, project staff is holding interactive review sessions with providers to review service area data together via online meetings and a preview version of the map. These sessions are targeted to providers where further clarification is deemed necessary.Utah has also experimented with mapping and analysis of FCC speed test data and terrain analysis of statewide satellite coverage claims.Map Disclaimer
Broadband service availability and characteristics are depicted as derived from data assembled by the Utah Broadband Project. Data sources include biannual broadband service provider submissions and publicly available sources. Data has been modified, where necessary, to meet broadband mapping standards set by the National Telecommunications and Information Administration (NTIA).Broadband service availability is displayed per NTIA specifications which include technology and speed categories and the aggregation of non-wireless service availability information to either U.S. Census blocks (where smaller than 2 sq. miles) or road segments.Speeds shown are the ‘maximum advertised’ for the geographic features depicted, and must exceed 0.768 Mbps download and 0.2 Mbps upload (NTIA broadband definition) to be included. Actual speeds may vary within and along census blocks and roads, due to the granularity and currency of the data, technological limitations, and service plan limitations. Users of the site are encouraged to inquire directly to providers for current service availability and speed.All information presented on the Utah’s interactive broadband map is for general reference purposes only and may contain errors and omissions. The State of Utah makes no warranty with respect to information available, express or implied, including but not limited to the fitness for use for a particular purpose.The Utah Broadband Project welcomes your comments (broadband@utah.gov).